

CLIMATE TRAINING WORKSHOPS
NOAA SARP Award Number NA17RJ1227
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Annual Status Report
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Summary

At the end of the first year of the project, all materials have been developed and the project team is prepared to begin the workshops. Due to the delayed start date and the unavailability of key personnel during the fall, the materials development lagged behind expectations. To compensate, the workshop schedule will be compressed such that all workshops will be conducted during Fall 2008 with replication activities during Spring 2009. By compressing the schedule, the project will still be completed on time.

Status of the milestones listed in the proposal:

- Develop Materials (original target dates August - November 2007) – Due to delays in the original start date, some of the personnel who had planned to participate during the summer of 2007 were not available until spring 2008. Consequently, although a first draft of the materials was completed within the original timeframe, key sections and revisions were not completed until the following spring / early summer. The materials are complete as of now, and are included on a CD-ROM accompanying this report. A summary of the content of the materials is included in the Appendix.
- Develop Evaluation (original target dates September - December 2007) – Approval of all instruments by the University of Oklahoma Institutional Review Board (IRB) is required before any evaluations can be conducted. The project design and protocol were completed and approved by the IRB at the beginning of the project; however the recruitment materials, questionnaires, follow-up surveys and interview guides could not be developed until the workshop materials were completed (and content was thoroughly determined). IRB approval of these documents was not obtained until August 2008. The participant profile will be administered at the beginning of each workshop. The content questionnaire will be administered as a pre-test at the beginning of the workshop and repeated as a post-test at the end of each workshop. This will allow documentation of changes in knowledge directly resulting from the material presented in the workshop. The recruitment letter and questionnaires are included on the CD-ROM. The follow-up survey and/or questionnaire remains to be developed and approved by IRB, but is dependent upon findings from the workshops before this can be completed.
- Conduct Workshops (original target dates January - June 2008) – the delays in production of the materials and pending IRB approval prevented workshops from being held during Year 1. Furthermore, because the primary audience for these workshops works in the agricultural community, there was great concern that we would not have a sufficient number of participants if the workshops were held during the summer “growing season.” After consultations with state Conservation District officials, we determined that it was necessary to delay the start of the workshops until Fall 2008 and compress the time schedule so they would be completed over the course of 6 weeks rather than 6 months. The new target date is for these workshops to be completed by the end of October 2008.

- Follow-Up Interviews (original target dates April – December 2008) – Interviews or surveys of participants from the workshops will be conducted in Spring 2009. This will allow time for the participants to interact with members of their communities to test the effectiveness of the information presented to them in the workshops. Materials requiring approval by the IRB will be developed and submitted immediately following completion of the workshops, based upon feedback from those workshops on the questions that should be included in the instruments.
- Adjust Materials (original target dates June 2008 – June 2009) – No revisions are underway at this time. Assistance from the AAG Climate Specialty Group has been solicited. Several participants on the listserv have indicated a willingness to review the materials prior to initiation of the workshops. Some adjustments in materials will likely occur as a result of these reviews, as well as further adjustments based upon findings of the workshops and evaluation results.
- Presentations (original target dates July 2008, March 2009) – The Year 2 request included travel funds for presentation of findings and recruitment of replication states. Because the start date was delayed from the original proposal date of May 1 until an actual start date of August 1, travel funds were not available for the annual meeting of the American Association of State Climatologists (AASC; held July 2008) as planned. These funds, which were to be used for recruiting replication states, are being re-directed to the American Meteorological Society's (AMS) Applied Climatology meeting in August 2008, which will be attended by Gary McManus, one of the developers and presenters for the workshops. Results will be presented as planned at the Climate Predictions Applications Sciences Workshop (CPAS) in March 2009. Because the CPAS Workshop will be held in Norman, requested travel funds will be directed to other meetings in order to disseminate findings more broadly. An abstract has been submitted to the AMS 18th Symposium on Education at the AMS Annual Meeting in January 2009.
- Replication States (original target dates October 2008 and January 2009) – These will be pushed back slightly to March and April 2009. Based on discussions among the AAG Climate Specialty Group, strong interest in conducting workshops has been identified in Vermont and Colorado. Other options will be examined based upon feedback from the AMS Applied Climatology Conference. Interest was also identified in Kansas, where the tree ring activity was presented at the Kansas Association of Teachers of Science (KATS) annual meeting. As originally proposed, we will attempt to partner with one state climate office and one NOAA RISA program to test replication.
- Replication Evaluations (original target dates April – June 2009) – The follow-up evaluations schedule is still on track. Evaluation instruments will be developed and approved by the OU IRB for the Oklahoma workshops; the same instruments will be used for the replication workshops so we do not anticipate any delays with IRB approval.
- Final Report (original target date June – July 2009) – We do not anticipate any delays in issuing the final report.

Appendix A: Summary of Presentations

Schedule of Presentations:

- 8:30 Welcome / Background Questionnaire / Pre-test (T. James)
- 8:50 Weather Briefing (D. Arndt)
- 9:00 Basics of Weather (N. Giuliano)
- 9:45 Break
- 10:00 Basics of Climate (D. Arndt)
- 10:45 ENSO Activity (N. Giuliano)
- 11:15 Break
- 11:30 Climate Variations and Change (G. McManus)
- 12:15 Lunch
- 1:15 Weather Briefing – recap from morning (D. Arndt)
- 1:30 Finding Climate Information (D. Arndt)
- 2:15 Tree Ring Activity (N. Giuliano)
- 2:45 Break
- 3:00 Drought (D. Arndt)
- 3:45 Hazards (G. McManus)
- 4:30 Post-test (T. James)
- 4:50 Wrap-up

Appendix B: Summary of key concepts presented in each of the modules

1. Climate Basics
 - Differences between weather and climate
 - Primary factors governing Earth's climate
 - Fundamentals of the Greenhouse Effect
 - Climate zones and regions
 - Teleconnections
 - Air masses
 - Oklahoma's climate
2. Weather Basics
 - Pressure and height
 - Heating and cooling
 - Troughs and ridges
 - Daily variations
 - Cloud types
 - Fronts
 - Severe storms
 - Outlooks, watches and warnings
3. Tree Ring Activity
 - Terminology
 - Describes basic relationships between precipitation and tree growth
 - Sample patterns with line thicknesses correlated to annual precipitation
 - Additional Resources
4. Climate Variations and Change
 - Definitions of climate variability and anthropogenic climate change
 - Natural causes of long-term climate change
 - Milankovitch Theory
 - Intergovernmental Panel on Climate Change (IPCC)
 - Paleoclimatology
 - Observational evidence of warming
 - Projected changes
 - Implications for Oklahoma
5. Finding Climate Information
 - Data sources (NWS Cooperative Observer, ASOS, Mesonet, Storm Reports, publications)
 - CPC Seasonal Outlooks & how to interpret them
 - Drought Monitor and Drought Outlook
 - ENSO, PDO, NAO and PNA Outlooks
 - Hazards and climate extremes

6. ENSO Activity
 - Definitions
 - Air-Ocean interactions
 - How to classify El Nino, La Nina or Neutral events
 - Typical impacts of El Nino / La Nina
 - Diagnose phases from past examples
 - Determine current phase
 - Additional Resources
7. Drought
 - Defining drought
 - Historical drought episodes in Oklahoma
 - Drought Indices
 - U.S. Drought Monitor and Drought Outlook
 - Drought Impact Reporter
 - Drought.gov website
 - Oklahoma Rainfall Update website
 - Oklahoma Water Resources Bulletin publication
8. Hazards
 - Weather-related hazards affecting Oklahoma
 - Regional vulnerability to hazards / disasters
 - Tornadoes
 - Severe Winds
 - Hail
 - Lightning
 - Floods
 - Drought
 - Extreme Heat
 - Wildfires
 - Winter Storms
 - Tropical Cyclones

Appendix C: Year 1 Budget Expenditures

ITEM	Requested	Expended
Senior Personnel T. James	\$8,551	\$0
Other Professionals N. Guiliano D. Arndt G. McManus	\$14,384	\$12,314
Graduate Students	\$6,930	\$0
Fringe Benefits	\$9,619	\$8,279
Travel 6 regional workshops @ \$500 each	\$3,000	\$0
Materials and Supplies El Nino Activity	\$1,000	\$94
Tuition	\$901	\$1,040
Indirect Costs	\$11,306	\$8,038
TOTAL COSTS – Year 1	\$55,691	\$45,246

Explanation of budget expenditures

T. James and the Graduate Students salary lines have been carried forward into Year 2 because of the delays in obtaining IRB approval. The salary lines are intended for conduct of the evaluation component of the project, which has not yet occurred.

Regional workshops have not yet been held due to the delays already mentioned. These funds are held over into Year 2. Workshops will be conducted in Fall 2008.

Remaining materials and supplies are associated with conduct of the workshops, which will be carried forward into Fall 2008.

Indirect costs accrue as funds are expended. Because some salary, workshop travel and supplies have not yet been expended, indirect costs on these items have not yet been charged to the grant.